

Remarks

Reconsideration and reversal of the rejections expressed in the Office Action of March 26, 2007 are respectfully contended in view of the following remarks and the application as amended. Support for such amendments is found throughout the specification, e.g., at pages 2-3 of the application as filed.

The present invention generally relates to a method and system for preventing wafer breakage during wet processing. A wet processing tank is provided wherein a wafer is to be placed within the wet processing tank. A sensor is provided within the wet processing tank wherein the sensor continuously counts bubbles formed within the wet processing tank in a time interval. The sensor is queried wherein if a bubble count within the time interval exceeds a trigger point, then an alarm is given so that a process lot will not be entered into the wet processing tank.

Claims 1-9 and 19-25 were again rejected under 35 U.S.C. §102(b) as being anticipated by Yoshioka et al. (US 2002/0027080 A1). Yoshioka et al. relates to an apparatus suited for forming a plated film in fine trenches and plugs for interconnects, and in the openings of a resist formed in the surface of a substrate such as a semiconductor wafer, and for forming bumps (protruding electrodes) on the surface of a semiconductor wafer. The apparatus includes a substrate holder capable of opening and closing for holding a substrate, such that the front surface of the substrate is exposed while the backside and the edge thereof are hermetically sealed; a plating tank accommodating a plating liquid in which an anode is immersed; a diaphragm provided in the plating tank and disposed between the anode and the substrate held by the substrate holder; plating liquid circulating systems for circulating the plating liquid to the respective regions of the plating tank separated by the diaphragm; and a deaerating unit disposed in at least one of the plating liquid circulating systems.

The Examiner's attention is directed to paragraph [0142] of Yoshioka et al., as follows:
"However, if the sensor mounted on the substrate holder 18 for checking the contact state between the substrate and contact points has detected a poor contact state, the substrate holder 18 holding the substrate having the poor contact is left stored in the stocker 24. Accordingly,

when a poor contact between a substrate and the contact points of the substrate holder 18 occurs, it does not halt the apparatus, but allows plating operations to continue. The substrate with a poor contact does not apply to the plating process. Instead the substrate is returned to the cassette and discharged from the cassette." (emphasis added). Thus, the sensor in Yoshioka et al. is mounted on a substrate holder, and serves to detect the contact state between the substrate and contact points. In contrast, the sensor in the present invention is apart from the wafer, and serves to count the number of bubbles formed within a processing tank, the bubbles caused by boiling of liquid; it does not (and cannot) check contact states between substrate and contact points because it is not mounted on a substrate holder, which in turn holds a substrate (i.e., a wafer). Indeed, there exists no reasonable expectation, based on Yoshioka et al., that Applicants' disclosed and presently claimed method would be effective. Thus this rejection is overcome.

For all of the above reasons, it is respectfully contended that the solicited claims define patentable subject matter. Reconsideration and reversal of the rejections expressed in the Office Action of March 26, 2007 are respectfully submitted. The Examiner is invited to call the undersigned if any questions arise during the course of reconsideration of this matter.

Respectfully submitted,

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